

TED02 – (Enviro Part 04) Ozone Depletion

Name _____

1. E.4.1 Describe the formation and depletion of ozone in the stratosphere by natural processes. (2) *Formation: $O_2 + uv \rightarrow 2O\bullet$ / $O_2 + O\bullet \rightarrow O_3$ Depletion: $O_3 + uv \rightarrow O_2 + O\bullet$ / $O_3 + O\bullet \rightarrow 2O_2$.*

- What is the difference between “good” ozone and “bad” ozone?
- What is stratospheric ozone, where is it found, and how dense is it?
- There are three types of UV radiation, ozone works to absorb the harmful rays, diagram what gets through:

	Spectral Range (nm)	Harmful to Humans?	Blocked by Ozone?	UV-c	UV-b	UV-a
UV – a						
UV – b						
UV – c						

- Describe the process of ozone formation and depletion

	Wavelength of Radiation	Equations:
Ozone Formation		
Ozone Depletion		

- Why is it important that a balance remain between ozone formation and ozone depletion?
- What would happen if both processes equally quit working?

2. E.4.2 List the ozone-depleting pollutants and their sources. (1) *Examples include chlorofluorocarbons (CFCs) and oxides of nitrogen (NOx).*

- What is the ozone “hole?” Where is it found?
- Man-made ozone depletion mainly results from two source molecules, complete the following table:

	What happens?	Equations:
CFC's		
N ₂ O		

3. E.4.3 Discuss the alternatives to CFCs in terms of their properties. (3) *Alternatives include hydrocarbons, fluorocarbons and hydrofluorocarbons (HFCs). Include toxicity, flammability, the relative weakness of the C–Cl bond and the ability to absorb infrared radiation.*
- a. There are three common alternatives to CFC's, describe each below:

Alternative	Name, how it works, why it's better, etc
HCFC's	
HFC's	
C _x H _y 's	